NEW COMBINATIONS IN COMPOSITAE[1]

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While preparing the Compositae for R. H. Mohlenbrock's forthcoming *Guide to the Illinois Flora*, it became evident that a number of new nomenclatural combinations would have to be made to better align certain taxa. It is deemed better to publish these separately as a note rather than to include them in a flora. Thus, the following combinations in *Heterotheca*, *Bidens*, and *Eupatorium* are proposed.

Heterotheca villosa (Pursh) Shinners var. **camporum** (Greene) Wunderlin, *comb. nov.*

Chrysopsis camporum Greene, Pittonia 3: 88. 1896.
Chrysopsis villosa (Pursh) Nutt. var. *camporum* (Greene) Cronq., Bull. Torrey Bot. Club 74: 150. 1947.
Heterotheca camporum (Greene) Shinners, Field & Lab. 19: 71. 1951.

Shinners (1951) proposed that *Chrysopsis* was congeneric with *Heterotheca*. This was founded on the fact that the traditional segregation based on the absence of a pappus in the ray-florets of *Heterotheca* was weakened by the occurrence of a vestigial pappus on some species and by a reduction of the ray-floret pappus in some species of *Chrysopsis*. Wagenknecht (1960) provided additional morphological data and Harms (1965) cytogenetic evidence to further substantiate this merger. In the author's opinion *Chrysopsis camporum* is best treated as a variety of *Chrysopsis villosa* as proposed by Cronquist (1947), but due to the merger of *Chrysopsis* with *Heterotheca* a new combination under *Heterotheca* must be made.

Bidens aristosa (Michx.) Britt. var. **aristosa** f. **fritcheyi** (Fern.) Wunderlin, *comb. et stat. nov.*

Bidens aristosa (Michx.) Britt. var. *fritcheyi* Fern., Rhodora 15: 78. 1913.

In the author's opinion this taxon is best treated as a forma rather than a variety, because of the occurrence of retrorse barbs on the awns of achenes in other taxa of *Bidens* which normally possess antrorsely barbed awns (*i.e. B. connata*, *B. eatonii*, and *B. frondosa*).

Bidens aristosa (Michx.) Britt. var. **aristosa** f. **mutica** (Gray) Wunderlin, *comb. et stat. nov.*

Coreopsis aristosa Michx. var. *mutica* Gray, Man. Bot. Ed. 5. 260. 1867.
Bidens aristosa (Michx.) Britt. var. *mutica* (Gray) Gattinger *ex* Fern., Rhodora 15: 78. 1913.

In the author's opinion this taxon is best treated as a forma rather than a

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variety, because of the variability of the length of the awns in this and other species of *Bidens*.

Bidens aristosa (Michx.) Britt. var. **retrorsa** (Sherff) Wunderlin, *comb. nov.*

Bidens polylepis Blake var. *retrorsa* Sherff, Bot. Gaz. 80: 386. 1925.

The number of outer involucral bracts, their length, and the condition of their margins (serrate-ciliate *vs.* smooth to ciliate) separates *Bidens polylepis* from *B. aristosa*. These characters overlap, and certain intermediate specimens are difficult to place. Thus, in the author's opinion, this taxon does not warrant specific recognition and is best reduced to a variety. It has been stated by various other workers (*i.e.* Cronquist, 1952, 1963; Steyermark, 1963) that *B. polylepis* is probably a variety of *B. aristosa*, but no new combinations have been made to this effect by these workers.

Bidens aristosa (Michx.) Britt. var. **retrorsa** (Sherff) Wunderlin f. **involucrata** (Nutt.) Wunderlin, *comb. et stat. nov.*

Coreopsis involucrata Nutt., Jour. Acad. Phila. 7: 74. 1834.
Diodonta involucrata (Nutt.) Nutt., Trans. Amer. Phil. Soc. n.s. 7: 360. 1841.
Bidens involucrata (Nutt.) Britt., Bull. Torrey Bot. Club 20: 281. 1893, *non* Sch.-Bip., 1846, *nec* Phil., 1891.
Bidens polylepis Blake, Proc. Biol. Soc. Wash. 35: 78. 1922.
Bidens polylepis Blake var. *typica* Sherff, Brittonia 6: 339. 1948.

In the author's opinion this taxon is best treated as a forma, because of the frequent occurrence of antrorsely and retrorsely barbed awns in other species of *Bidens* (see *B. aristosa* var. *aristosa* f. *fritcheyi* above).

Further new nomenclatural combinations are undoubtedly needed in *Bidens* but, this would require extensive study of the genus which is beyond the scope of a flora.

Eupatorium × polyneuron (F. J. Herm.) Wunderlin, *comb. et stat. nov.*

Eupatorium perfoliatum L. var. δ T. & G., Fl. N. Amer. 2: 88. 1841.
Eupatorium cuneatum Engelm. *ex* T. & G., Fl. N. Amer. 2: 88. 1841, *pro syn., non* DC., 1836.
Eupatorium perfoliatum L. var. *cuneatum* (Engelm. *ex* T. & G.) Engelm. *ex* Gray, Syn. Fl. N. Amer. 1: 100. 1884.
Uncasia cuneata (Engelm. *ex* T. & G.) Greene, Leafl. Bot. Obs. & Crit. 1: 13. 1903.
Eupatorium serotinum Michx. var. *polyneuron* F. J. Herm., Rhodora 40: 86. 1938.

This plant is a frequently occurring hybrid between *Eupatorium perfoliatum* and *E. serotinum* found in Arkansas, Illinois, Indiana, Louisiana, and Missouri. A more detailed analysis of the hybrid nature of this plant is currently under investigation by the author.

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